

DOCUMENT RESUME

ED 250 613

CG 017 812

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TITLE The Effects of Alcohol Education: A Review of Research 1980-1984. Report #4.
INSTITUTION New Zealand Council for Educational Research, Wellington.
PUB DATE 84
NOTE 25p.; A report to the Health Education Resources Project, Massey University.
PUB TYPE Information Analyses (070)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adolescents; *Alcohol Education; Attitude Change; Behavior Change; Children; *Educational Research; Elementary Secondary Education; Health Education; *Program Effectiveness; *School Activities
IDENTIFIERS New Zealand

ABSTRACT

This report reviews the research on the effects of school-based alcohol education on alcohol related attitudes and behaviors. The introduction comments on the past 10 years of research, and summarizes a drug/alcohol education research paradigm. The findings highlight the inadequacy of research and the persistent failure of programs to influence behaviors. An analysis of 16 recent studies, 1980-1984, on the effects of alcohol education on school age populations is presented. The analysis includes the names of the studies, the populations, the strategies used, control group and testing information, and comments. Research findings are discussed in relation to the impact of alcohol education on knowledge, on attitudes toward alcohol, and on drinking behavior. The effects of person-focused alcohol education programs are discussed also. The report draws two conclusions: recent school-based alcohol education programs have been only marginally more successful than older, more traditional approaches in influencing youthful drinking behavior; and schools may not be the arena for changing attitudes toward alcohol and patterns of consumption. (BL)

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ED250613

A Report to:

HERP Research Project
Education Department
Massey University
Palmerston North

REPORT #4

The Effects of Alcohol Education:
A Review of Research 1980-1984

by
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HERP Research Project
Education Department
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Palmerston North

CG 017812

THE HERP RESEARCH PROJECT

This research project, jointly funded by the Alcoholic Liquor Advisory Council and the National Heart Foundation, is to evaluate the Health Education Resources Project as a means of furthering the development of Health Education, with specific reference to the development, dissemination, use and impact of the Alcohol Education Kit and the Smoking Intervention Kit.

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The Effects of Alcohol Education: A Review of Research 1980-1984

Keith Pickens¹

Summary: School-based alcohol education can impart information about alcohol and it may have an impact on alcohol-related attitudes. It has, however, only a minimal effect on alcohol-related behaviour.

Introduction

Review and analysis of the research on the effects of drug or alcohol education is a type of intellectual activity virtually unknown before the 1960s and uncommon before the 1970s. Now, of course, in the 1980s, research reviews and state of the art papers are a ubiquitous feature of the documentation in this field. The watershed seems to have occurred in the early to mid-1970s, signifying in the first instance that by those dates the number of individual evaluation studies had reached some kind of critical mass and, secondly and probably more significantly, that fear and uneasiness about the effects of drug education had peaked as well.

In the 10 years since, worry about the cruder dangers of drug education seems to have subsided. In its place, however, a great deal of uncertainty about both the positive value, and the cost-effectiveness, of school-based drug and alcohol education has arisen. During the same period of time, the number of evaluation reports has grown, a handful of seminal studies have been completed and, above all, literature reviews have appeared with some frequency and regularity.

¹New Zealand Council for Educational Research, Wellington, New Zealand.

Acknowledgement: This report was prepared in the context of an evaluation of an Alcohol Education Kit made available to New Zealand schools by the Health Education Resources Project, New Zealand Department of Education. The evaluation is being carried out at Massey University, Palmerston North, New Zealand, under the supervision of Professor R.S. Adams.

All of this work, but particularly the successive secondary analyses of the ever-increasing volume of primary research, has resulted in the development of a drug/alcohol education research paradigm, the main elements of which can be summarized as follows:

- 1 It is quite easy to increase knowledge about drugs. Any kind of instructional method will produce this result. (e.g., 1-11)
- 2 Since drug knowledge and drug use do not seem to be related in a simple or causal way, the benefits of improving the drug knowledge of students are by no means clear. (e.g., 1,4,7-9,13)
- 3 It is often possible to change attitudes in an anti-drug direction, but it is not as easy to do this as it is to improve drug knowledge. Additionally, attitude change programmes tend to have an element of unpredictability about their results that knowledge gain programmes do not have. (e.g., 1,3,5-8,14)
- 4 Since drug attitudes and drug use do not seem to be related in a simple or causal way, the benefits of giving students anti-drug attitudes have yet to be demonstrated. (e.g., 7-8,13)
- 5 It is very difficult to bring about changes in drug-using behaviour. (e.g., 1,3,5,7-11)
- 6 Some drug education programmes may increase the likelihood of drug experimentation or use. (e.g., 6,9,13,15-16)
- 7 Some drug education programmes may produce a mixed outcome, that is, some negative and some positive effects. (e.g., 7,14-16,26)

- 8 The effects of drug education differ with different types of students. Drug users react differently than non-drug users. Age and sex also seem to influence the outcomes. (e.g., 13-15,17-18,26)
- 9 The research on the effects of drug education is deficient in many respects, and no tendency towards a general improvement is evident. Only the most tentative conclusions can be drawn from it. (e.g., 2-3,5-6,8,10-11,13,16-19)

It is in the light of this history of more or less inadequate research and persistent failure to influence behaviour that the results of the most recent studies of the effects of alcohol education have to be considered.

Recent Research

Sixteen reports (20-35) on the effects of alcohol education on school age populations published since the beginning of the decade were located. Figure 1 contains brief profiles of these studies and Table 1 records the impact of the education programmes employed on one or more of the following: knowledge about alcohol, attitudes to alcohol and its consumption, drinking behaviour, or some other named variable.

Note that in a number of cases only brief descriptions of the programmes and their associated evaluation schemes were readily available. It is possible that access to comprehensive data about the nature, target groups, implementation, evaluation-procedures and detailed results of all of the alcohol education programmes considered below might change either the judgements made in this review, or the degree of tentativeness with which they have been made.

Figure 1.- Studies of Alcohol Education 1980-1984

Study	Sample/Age Group	Strategies	Control Group	Post Testing	Comment
Andrews and Steinmetz (24)	600 8 year olds. See Comment.	Information.	Yes.	Annually (1979, 1980, 1981, 1983, 1985, 1987, 1989) Self-report.	Longitudinal study begun in 1977, when subjects were in kindergarten. Will continue until they reached the 11th grade. Programme covers smoking, other drugs and health practices as well as alcohol.
Botvin et al. (34)	1185 12 year olds.	Life Skill Training i.e. information, decision-making, stress reduction, assertiveness training, self-improvement training, led by peer leaders or teachers.	Yes.	After 4 months. Self-report. Salvia samples.	Study of a programme aimed at cannabis and smoking as well as alcohol.
Botvin et al. (35)	167 12 year olds.	Life Skills Training. see Botvin et al. (34).	Yes.	1st at 3 months? 2nd 6 months after 1st post test. Self-report.	Alcohol only programme.
Carpenter (23)	High school students.	Information, peer influence, self-monitoring procedure.	No Comparison between treatment.	Immediate. Blood alcohol measurement.	Ph.D study. Alcohol only programme.
Casswell (20)	1931 13 and 14 year olds.	Information, decision-making.	Yes.	After 3 months. Self-report.	A drug education programme with an emphasis on alcohol and smoking.
Collins (21)	Several hundred 12 to 14 year olds.	Information, decision-making, peer influence.	Yes. Comparisons between treatments as well.	At 2 weeks, 1 year and at 2 years. Self-report.	Ph.D study. Alcohol only programme.
Domino (25)	209 high school students.	Persuasive communication, discussion.	Non-random comparison group.	Immediate. Self-report.	Design flaws, let alone the results obtained, make publication of this study hard to justify.

Duryea (31)	155 14 year olds.	Information, decision-making.	Yes.	After 1 week. Self-report.	Alcohol only programme.
Gliksmen et al. (32)	716 14-15 year olds.	Information, persuasive communication.	Yes. Comparisons between treat- ments as well.	After 1 week. Self-report.	Alcohol only programme.
Goodstadt et al. (26)	1353 12-13 year olds. 684 14-15 year olds.	Information decision-making.	Yes.	After 1 week. Self-report.	Alcohol only programme.
Goodstadt et al. (33)	332 high school students.	Information, decision-making, values clarification.	Yes. Comparisons between treat- ments as well.	At 1 week and at 6 months. Self-report.	Alcohol only programme.
McAlister et al. (22)	526 12-14 year olds.	Information, decision-making, peer-influence.	No. Comparison between treatments.	At 12, 16 and 21 months. Self-report.	Programme covered smoking and other drugs as well as alcohol. Data on drink- ing very sparse.
Moore et al. (27)	96 9 and 14 year olds.	Conditioning.	Yes.	After 1 day. Self-report.	Programme covered smoking and other drugs as well as alcohol.
Stainback (28)	113 14 year olds.	Persuasive communication.	No. Comparison between treatments.	Immediately, then 2 days after a pro-drinking message.	Alcohol only programme. Ph.D study.
Terry (29)	Approximately 400 9-11 year olds.	Information, decision-making.	Yes.	?	Alcohol only programme. Ph.D study.
Watts (30)	797 10 year olds.	Information, decision-making.	Yes.	?	Ph.D study. Programme covered smoking as well as alcohol.

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The Impact of Alcohol Education on Knowledge

Slightly more than a third (i.e. 6 out of 16) of the studies did not attempt to measure the impact of their programmes on alcohol-related knowledge. Of the remaining 10, one (23) reported no significant impact and one (30) a negative impact, the control group showing a greater knowledge gain than the experimental group. The balance of the studies, (8 out of 16) all reported a knowledge gain, with groups of varying but generally large size, ranging in age from 9 years to 15 years or older. This is the kind of result that past experience with drug information programmes would have led us to expect.

There are, of course, a number of important subsidiary issues that could be considered: the kinds or types of information conveyed, the instructional methods employed, the characteristics of the target group, the nature of the interactions among message, medium and audience, not to mention questions to do with the retention and maintenance of factual or other kinds of information and knowledge.

Unfortunately, with a few exceptions, the studies under review either do not address questions of these types, or the documentation provided (for example, on the kind of information conveyed) is insufficient for comparative purposes. This, of course, is also something that past experience with the literature on the effects of drug education would have led us to expect. In any event, the key issues are not how the knowledge gain is produced, or its nature or permanence, but the relationship between knowledge and attitudes and even more fundamentally, between knowledge and behaviour.

The Impact of Alcohol Education on Attitudes to Alcohol

Of the 16 studies surveyed in this report only 10 attempted to influence attitudes to alcohol. Of these latter studies, 6 reported no significant impact. The rest reported a positive impact, but one of these (27) did not measure the corresponding impact, if any, on behaviour, and one (26)

Table 1.- The Impact of Alcohol Education 1980-1984, 16 Studies

Studies	Variables			
	Knowledge	Attitudes	Behaviour	Other
Andrews and Steinmetz (24)	NM	NM	NS	NS (locus of control)
Botvin et al. (34)	P	P	P	P (locus of control) P (self esteem*)
Botvin et al. (35)	NM	NM	P	NM (life skills)
Carpenter (23)	NS	NS	NS	P (self esteem)
Casswell (20)	P	NS	NS	NM (decision making) NS (intention to use)
Collins (21)	P*	NM	NS	NM (decision making)
Domino (25)	NM	NS	NS	NS (self esteem)
Duryea (31)	P	NS	NS	P (decision making)
Gliksmann et al. (32)	P	Mixed*	P	None
Goodstadt et al. (26)	P*	Mixed	NS	NM (decision making)
Goodstadt et al. (33)	P	NS	NS	P (decision making) N (values clarification) NS (intention to use)
McAlister et al. (22)	NM	NM	P	NM (decision making)
Moore et al. (27)	NM	P	NM	P (intention to use)
Stainback (28)	NM	NM	NM	NS (intention to use)
Terry (29)	P	NS	NM	P* (decision making) NS (self esteem)
Watts (30)	N	NM	NM	NS (intention to use)

* Sex differences found. NS = Not Significant. NM = Not measured.
P = Positive. N = Negative.

reported no significant impact on behaviour, leaving only three studies that reported a positive effect both on attitude to alcohol and on drinking behaviour.

Botvin et al. (34) reported a knowledge gain, positive attitudinal changes and a positive impact on behaviour among the students in their sample - a reduction in the amount of alcohol consumed per occasion. Their study involved a comparison between peer-led and teacher-led conditions, the results of which favoured the peer-led group. Post testing, of the self-report variety, took place after an interval of 4 months.

While Botvin and his associates seem to have targetted several different alcohol-related attitudes, the impact of their programme on each of these attitudes is not reported. This makes it difficult to assess the relationship between attitude change and behavioural change. Nor do they report data for drinkers as compared to non-drinkers, an item of information of some importance, as the studies reported below indicate.

Glikzman et al. (32), used a rather different approach, but also reported a positive impact on drinking behaviour, the measurement (self-report) having been taken immediately following the programme.

Ignoring the limitations of self report procedures as a means of assessing the impact of drug education in general and alcohol education in particular, the lack of longer term measurements in both of these studies allows us to do no more than note a possible short-term effect, the durability, let alone reality, of this effect having yet to be demonstrated.

Two other aspects of the Glikzman et al. study are of special note. One is the identification of some nine specific alcohol-related situations or conditions (e.g. drinking and driving, alcoholism) and the measurement of the programme effects on attitudes towards each of these situations or conditions. The results of the measurements were as follows. In a

number of cases, no effect was produced. In other cases, age, sex or current level of alcohol use acted as moderating variables, producing different results for different categories of students. These findings confirm two of the conclusions of the state of the art reviews, namely that attitudinal change is neither easy nor entirely predictable, and that the effects of education differ with different types of audiences or target groups.

The second point is the assertion by Gliksman and his colleagues that the results of their study demonstrate a direct relationship between attitudes or motivation and behaviour. On the face of it, this seems to be true, at least in the immediate term, but the lack of longer term measurements of drinking behaviour makes their statement somewhat speculative. Additionally, there is good evidence (14) that attitudes are not fixed or durable constructions - over time they can fade, or even reverse. If Swift and others are right, and attitudes are mutable over time, and if Gliksman and his associates are also right, and attitudes do shape behaviour, then long term assessment of programme impact on attitudes become an essential element of any evaluation procedures.

Finally, Goodstadt et al. (26) reported that the non-drinkers in their programme were reinforced in their behaviour, and became more negative in their attitudes to alcohol. No significant effects on the behaviour of boys already drinking at the commencement of the programme were found, and attitude change among boy drinkers was in a pro-alcohol direction.

Goodstadt et al. also uncovered some sex differences, re-affirming the view that sex as well as prior experience with drugs are important influences on the impact of drug education programmes.

Past research in the field of drug and alcohol education indicates that attitudinal change is difficult to bring about and, in any event, of uncertain value. There is nothing in the findings of recent research to persuade one to alter this assessment.

The Impact of Alcohol Education on Drinking Behaviour

Of the 16 studies under review, 4 did not attempt to measure the impact on drinking behaviour. Eight reported no significant effect on behaviour, leaving only 4 out of 16 in contention. The documentation for one of these four (22) was insufficient for the purposes of this study. Of the remaining three studies two (26, 34) have already been described. Both reported a short-term impact on behaviour, on the basis of immediate self reporting. The third study (35) found significant differences in drinking behaviour 6 months after the initial post test which, interestingly enough, had failed to reveal any differences between the experimental and control groups.

However, no measurements of changes in knowledge or alcohol attitudes were made, nor of development in the life skills which the programme was intended to foster and there are other deficiencies of design and documentation which make it difficult to assess the meaning of the results obtained from this particular study.

Drug education is a field that has suffered more than most from either undue optimism or excessive pessimism. In respect of the recent research, an optimist would probably argue that it provides persuasive evidence that alcohol education can have a restraining effect on the alcohol consumption of young people. A pessimist would point out that in the absence of any procedures for cross-checking of self report data, it is debatable whether this effect actually occurred. Even assuming that it did, the lack of long term follow-up makes it impossible to say anything useful about its durability.

The middle road, taking account not only of the handful of studies that report some positive results but also considering the many other studies that report failure to influence behaviour, would be to say that there is some reason to believe that some kinds of alcohol education can, under

certain conditions and with particular populations, have at least a temporary impact on drinking behaviour. Given the consequence that can flow from even a single act of teenage alcoholic over-indulgence, a result of this kind is by no means to be disparaged. However, the bottom line is surely that long term behavioral change as a routine or automatic result of school-based alcohol education is as elusive an outcome as it has ever been. Indeed, one can go even further, and suggest that the decision to begin using alcohol, taken prior to the commencement of an alcohol education programme, may induce a degree of immunity to the programme. There is strong evidence in both the Gliksman et al. (32) and Goodstadt et al. studies (26) that this may be so, and other studies of the effects of drug education have tended to show that drug users respond differently to education than do non-users.

This raises the possibility that school-based alcohol education may be an example of preaching to the already converted, and that the essential decisions involved in either drinking or not drinking, or adopting one kind of drink habit as against another, are taken elsewhere and beyond the reach of the schools. At the very least, it raises questions to do with the timing of alcohol education.

Other Objectives

Traditionally, drug and alcohol education programmes employ the knowledge-attitudes-behaviour model. The fundamental assumption of this model is that ignorance of the consequences is the cause of drug abuse.

Accordingly, emphasis is laid on the giving of information, of a kind that will produce anti-drug attitudes, which will in turn discourage if not prevent drug misuse.

The failure of information-based programmes to produce any significant impact on behaviour has tended to undermine faith in the knowledge-attitudes-behaviour model and, more recently, other significant pre-disposing factors have been suggested. These include lack of assertiveness in the offer situation, uncertainty about the pros and cons involved in the decision to experiment with or use a drug, confusion about the social values underlying the prohibition against drug abuse, and poor self-concept.

The knowledge-attitude-behaviour model is substance-orientated, in that conveying information about the adverse effects of the drug or drugs in question is seen as the main educational task. The newer models are person-focussed, which is to say that the main task of education is seen to lie in developing the ability of the individual to cope in his or her encounters with drugs. The same comment is true of programmes that aim to develop or enhance self concept, or clarify values.

Of the 16 studies under review no less than 15 specified gains or improvements on a variable or variable other than knowledge, attitudes or behaviour as a programme outcome, commonly decision-making skills (8 studies) or self-concept (4 studies), with locus of control (2 studies) and values clarification (1 study) being less frequently sought objectives.

If person-focussed approaches to alcohol education are theoretically sound, there must be, as the antecedent of behavioural change, a discernible improvement in the targeted variable. Table 2 records the pre-condition and behavioural outcomes for programmes of the two most popular types - decision-making, and self concept/esteem strategies.

In five cases, no attempt seems to have been made to measure the impact of the programme on the intermediary target variable. Thus there is no guarantee that the hypothesised pre-condition for behavioural change (improvement in decision-making skills or enhancement of self-concept) actually occurred, and certainly no way of relating any behavioural change that may have occurred back to gains or improvements in these areas.

Table 2.- Person-Focussed Alcohol Education, Results of 11 Studies

Pre-Condition Variable	Pre-Condition Result				Behavioural Result			
	NM	NS	P	N	NM	NS	P	N
Decision-Making Skills	5	0	3	0	1	5	2	0
Self-Concept/Esteem	0	2	2	0	1	2	1	0

Source: Table 1. NM= Not Measured. NS= Not Significant. P= Positive N= Negative.

In two cases, no significant improvement in the targeted area was found. No effect on alcohol-related behaviour could thus be expected. In all, of seven cases in which measurements were made of the pre-condition variable, five produced a positive result. Unfortunately, the pattern of measurements made of the corresponding behavioural changes do not allow a strong association to be made between these changes and changes on the pre-condition variable. For example, of the three studies that reported an improvement in decision-making skills two (31, 33) recorded a non-significant impact on behaviour, and one (29) did not measure the effect on behaviour. Of the two studies that reported an enhancement of self concept/esteem, one (23) reported a non-significant impact on behaviour, leaving only one study (34) reporting a positive effect on the pre-condition and a positive effect on behaviour as well.

Several comments suggest themselves. The first is that it is a serious defect of research design not to measure and report the degree of success in developing some characteristic or skill which is regarded as an essential pre-condition or pre-requisite for behavioural change or maintenance. The second comment, or rather set of comments, relates to the situation wherein an apparent improvement in the pre-condition variable does not produce the desired behavioural response. There could be several reasons for this. The improvement in the targeted skill may not have been of sufficient magnitude to influence behaviour. The subject may have found it difficult to transfer skills acquired in the classroom into everyday, practical situations. Or it may be that the theoretical relationship felt to exist between decision-making skills or some other intermediate target and drinking behaviour does not exist in the way specified.

In any event, until person-focussed programmes routinely report the degree of success with which they achieve their preliminary objective, as well as the impact on the primary objective of alcohol behaviour, only tentative judgements on the efficacy of these approaches, let alone their theoretical soundness, can be made.

Conclusions

The first and inescapable conclusion is that the most recent approaches to school-based alcohol education are only and at best marginally more successful in influencing youthful drinking behaviour than older, more traditional approaches.

The second conclusion follows on from the first, and from all the previous research into the effects of school-based alcohol education as well. But it is also informed by the findings of research into the cultural origins and social significance of alcohol consumption in our society. It can be stated as follows.

If the ultimate objectives are to produce a radical change first in attitudes to alcohol and second in the patterns of consumption, then all the indications are that in looking to the schools to spear-head our campaign we are looking in the wrong place.

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